This listing of claims will replace all prior versions and listings of claims in the applications.

LISTING OF CLAIMS

1. (Previously presented) A method of fabricating a biolectronic component, the method comprising the steps of:

   a. providing a batch of nanoparticles having submicron sizes and an electrical characteristic;

   b. attaching at least one biological material to the nanoparticles so as to form shells of the biological material therearound;

   c. depositing the nanoparticles onto a surface; and

   d. causing the deposited nanoparticles to be in electrical communication with at least one electrical contact to facilitate an electrical measurement thereof, the electrical measurement being affected by the biological material.

2. (Previously presented) The method of claim 1 in which the nanoparticles are caused to be in electrical communication with said electrical contact by self-assembly.

3. (Previously presented) The method of claim 1 in which the nanoparticles are caused to be in electrical communication with said electrical contact by electrostatic assembly.

4. (Original) The method of claim 1 wherein the nanoparticles are semiconductive.

5. (Original) The method of claim 1 wherein the nanoparticles are conductive.

6. (Original) The method of claim 1 wherein the nanoparticles, surrounded by the biological material, collectively act as an insulator.

7. (Previously presented) The method of claim 1 wherein the component is a transistor comprising a source element and a drain element and a semiconductor layer disposed between the source and the drain elements, and depositing the nanoparticles onto a surface comprises depositing the nanoparticles onto the surface of the semiconductor layer.

8. (Previously presented) The method of claim 1 repeated at a plurality of locations on a substrate to form an array of bioelectronic components.

9. (Previously presented) A method for fabricating a biolectronic component, the method comprising the steps of:

a. providing a first batch of nanoparticles having submicron sizes and a first electrical characteristic;

b. depositing the first batch of nanoparticles onto a surface;

c. sintering the first batch of nanoparticles to form a continuous, uniform layer exhibiting the electrical characteristic of the first batch of nanoparticles, the layer having a surface;

d. providing a second batch of nanoparticles having submicron sizes and a second electrical characteristic;

e. attaching at least one biological material to the second batch of nanoparticles so as to form shells of the shells of the biological material therearound;

f. depositing the second batch of nanoparticles onto the layer surface formed by the first batch of nanoparticles;

g. causing the deposited second batch of nanoparticles to be in electrical communication with at least one electrical contact to facilitate an electrical measurement thereof, the electrical measurement being affected by the biological material.

10. (Previously presented) The method of claim 9 further comprising the step of forming an electrical contact according to steps comprising:

prior to steps (d) – (g),

i. providing a third batch of electrically conductive nanoparticles having submicron sizes;

ii. depositing the third-batch nanoparticles in contact with the layer derived from the first batch of nanoparticles; and

iii. sintering the third-batch of nanoparticles to form the electrical contact,

wherein the subsequently deposited second batch of nanoparticles is caused to be in electrical communication with the electrical contact.

11. (Previously presented) The method of claim 10 further comprising the steps of repeating steps (a) – (g) and (i) – (iii) at a plurality of locations on a substrate to form an array of bioelectronic components.

12. (Previously presented) The method of claim 1 wherein the biological material comprises at least one nucleic acid.

13. (Previously presented) The method of claim 1 wherein the biological material comprises at least one protein.

Claims 14-25 (Canceled)

26. (Withdrawn) A method of fabricating a bioelectronic component, the method comprising the steps of:

a. providing a batch of nanoparticles having submicron sizes and an electrical characteristic;

b. depositing the nanoparticles onto a surface;

c. sintering the batch of nanoparticles to form at least one layer of an electrical device; and

d. positioning a biological material to be in electrical communication with at least one layer of said electrical device to facilitate an electrical measurement thereof, the electrical measurement being affected by the biological material, wherein the biological material is selected from the group consisting of proteins, polypeptides, polysaccarides, carbohydrates, enzyme substrates, antigens, antibodies, pharmaceuticals, and combinations thereof.

27. (Withdrawn) The method of claim 26 repeated at a plurality of locations on a substrate to form an array of bioelectronic component.

28. (Withdrawn) The method of claim 26 in which said electrical device is a transistor comprising a semiconductor layer disposed between a source element and a drain element, and depositing the nanoparticles onto a surface includes depositing the nanoparticles onto the semiconductor layer.

31. (Withdrawn) A method of fabricating a bioelectronic component, the method comprising the steps of:

a. providing a batch of nanoparticles having submicron sizes and an electrical characteristic;

b. depositing the nanoparticles onto a surface;

c. sintering the batch of nanoparticles to form at least one layer of an electrical device; and

d. positioning a biological material to be in electrical communication with at least one layer of said electrical device to facilitate an electrical measurement thereof, the electrical measurement being affected by the biological material, wherein the biological material comprises nucleic acids.